

Power Products Article Archive

Articles published in the January through May 2022 issues

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January 2022:

Boost Converter Demo Board Shows Off Benefits Of Controller & GaN FETs Combo, *Efficient Power Conversion's EPC9166 demo board*

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Automotive Boost Controller Shrinks Class-D Audio Amplifier, *Analog Devices' MAX25203 boost controller*

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Source-Down Power MOSFET Package Now Available For More Devices, *Infineon Technologies' OptiMOS Source-Down power MOSFETs*

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Silicon-Based ACF Reference Design Challenges GaN-Based Chargers, *Silanna Semiconductor's active clamp flyback-based reference design for 33-W 1C fast chargers*

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Fast Recovery Epitaxial Diodes Support Higher Current Applications, *Taiwan Semiconductor's PUUPxxH family of fast recovery epitaxial diodes*

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Third-Gen SiC MOSFETs Enhance Performance For EVs, *STMicroelectronics' third-generation STPOWER SiC MOSFETs*

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February 2022:

A 2-kW Bidirectional Converter Reference Design Board With High Efficiency, *Efficient Power Conversion's EPC9170 demo board*

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Smart Gate Driver With SPI Protects 48-V Battery Systems In Mild Hybrids, *Infineon Technologies' 2ED4820-EM EiceDRIVER gate driver*

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CAD Models Are Now Available For Entire Semiconductor Product Line, Taiwan Semiconductor's and SnapEDA's library of CAD models

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Switcher ICs With 1700-V SiC MOSFET Simplify EV Power Supply Design, Power Integrations' INN3947CQ-TL and INN3949CQ-TL power supply ICs

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Demo Boards Ease Transition From Rad Hard Si MOSFETs To GaN Devices, EPC Space's EPC7C001, EPC7C002, EPC7C003 low-side driver demo boards, EPC7C005 half-bridge output demo board, and EPC7C006 three-phase motor demo board

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High PSRR LDO With Soft Start Powers Automotive Sensor Systems, Nisshinbo Micro Devices' NR1640 series LDO regulator

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Dual Gate Drivers For SiC And IGBT Switching, STMicroelectronics' dual-channel galvanically-isolated gate drivers for IGBTs (STGAP2HD) and SiC MOSFETs (STGAP2SICD)

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Buck Converter Reduces Space In Multi-Cell Battery Applications, Analog Devices' MAX77540 buck converter

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100-V Gate Driver Raises Efficiency, Saves Space, Diodes' DGD0579U high-side and low-side gate driver

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March 2022:

40-V Bidirectional GaN HEMT Brings GaN Into Phone Handsets, Innoscience Technology's INN40W08 GaN-on-Si e-mode HEMT

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Battery Design Software Eases Drawing Of Custom Battery Configurations, Voltplex Energy's Voltx.ai battery design software

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Inverter Reference Design Delivers Premium Motor Performance At Low Cost, Efficient Power Conversion's EPC9167 inverter reference design

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Configurable Power Supplies Simplify Installation Of LED Horticultural Lighting, Advanced Energy's LCM4000HV series of configurable power supplies

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Wet Electrolytic Tantalum Capacitors Deliver Higher CV/cc At 200°C And 125 V, KYOCERA AVX's 470- μ F TWA-Y series capacitor

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All-Silicon, 65-W ACF Reference Design Challenges GaN-Based Adapter Designs, Silanna Semiconductor's RD-31 active clamp flyback (ACF)-based reference design

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Precision P-Channel MOSFET Arrays Offer Nano-Power Operation, Advanced Linear Devices' ALD310702A/ALD310702 nano-power precision p-channel EPAD MOSFET arrays

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Fourth-Gen 600-V SJ MOSFET Lowers $R_{DS(ON)} \times Q_G$ FOM, Vishay Intertechnology's Vishay Siliconix SiHK045N60E n-channel power MOSFET

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600-V SJ MOSFETs Target Wide Range Of Applications, Magnachip Semiconductor's 11 new 2.5 generation (2.5G) superjunction (SJ) MOSFETs

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50- μ A Zener Diodes Extend Battery Runtime And Save Space, Nexperia's Zener diodes in SOT23 (BZX8450), SOD323 (BZX38450), SOD523 (BZX58550) and DFN (BZX8850S) surface-mount packages

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April 2022:

APEC 2022: GaN Power Devices And Advanced Topologies Are Put To Work In Latest Adapter Designs

- Infineon's demo of a 65-W dual USB type C charger reference design and 240-W technology demonstrator
- Innoscience Technology's 140-W USB-PD 3.1 adapter and 240-W adapter demos
- Efficient Power Conversion's EPC9171 240-W USB-PD 3.1 fast charger reference design

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- *Eggtronic's SmartEgg ac-dc architecture for power applications in the 75- to 1-kW range, and the associated 230-W demo*
- *Silanna Semiconductor's AnyPort RD-5 multi-port fast charger reference design, RD-16 100-W 2C1A multi-port USB-PD reference design and RD-25 118-W 1C1A multi-port USB-PD reference design and Smarter Living's 3510PDFE 65-W charger*
- *Power Integrations' HiperPFS-5 family of quasi-resonant PFC ICs with a 750-V GaN switch, HiperLCS-2 chipset for LLC resonant converters, and DER-916 reference design for a Multi-Port USB-C Wall Outlet Without Buck Converters*

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40-V Rad-Hard GaN FET Boasts Low On-Resistance, EPC's EPC7019 eGaN FET

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650-V SiC MOSFETs In D²PAKs Reduce Switching Losses, Improve Thermal Performance, Infineon Technologies' CoolSiC MOSFETs

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Startup's 650-V GaN Devices' Boast Ease Of Use, Cambridge GaN Devices' ICeGaN 650-V H1 series of GaN HEMTs

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Charge-Pump Converter Expands Options For Distributing Board-Level Power, Murata's MYC0409 charge-pump capacitor-divider module

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MOSFET Electrothermal Models Cover Entire Operating Temperature Range, Nexperia's enhanced electrothermal models for its MOSFET devices

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GaN HEMT Enables High-Efficiency Power Supply For Smart Utility Meters, GaNPower International's application note on high-voltage GaN for smart utility meters

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140-W Adapter Demo Uses Both High- And Low-Voltage GaN Switches, Innoscience Technology's 140-W power supply demo

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Quasi-Resonant PFC Chips With GaN Switch Shrink PFC Stage For Adapters, Power Integrations' HiperPFS-5 family of power-factor-correction ICs

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Chipset Boosts LLC Converter Efficiency, Slashes Component Count, Power Integrations' HiperLCS-2 resonant switch and synchronous rectification chipset

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3.3-kV SiC MOSFETs And SBDs Extend Design Options For HV Power Electronics, Microchip Technology's expanded SiC portfolio includes the 25-mΩ MSC025SMA330 SiC MOSFET and 90-A MSC090SDA330 SiC SBD

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150-V GaN HEMTs Feature 8-V Withstand Gate Voltage, ROHM Semiconductor's GNE10xxTB series 150-V GaN HEMTs

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May 2022:

RF Power Delivery Platform For Industrial Plasma Applications, Advanced Energy Industries' ALTA platform RF power delivery solution

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Tiny, Quad-Output Regulators Need No External Inductors Or Capacitors, Empower Semiconductor's EP71xx integrated voltage regulators

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SSRs Shrink Design Size, Improve Reliability And Safety In 800-V EVs, Texas Instruments' TPSI3050-Q1 isolated switch driver and TPSI2140-Q1 isolated switch

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350-V GaN Transistor Boasts Small Size And Low Cost, Efficient Power Conversion's EPC2050 350-V GaN transistor

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1200-V SiC FETs Ease Design Optimization, UnitedSiC's UF4SC120023K4S, UF4SC120030K4S, UF4C120053K4S/K3S and UF4C120070K4S/K3S Gen 4 1200-V SiC FETs

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System-In-Package Incorporates Complete Power System For Advanced SoC, Octavo Systems' OSDZU3 family of SiP devices based on the AMD Xilinx Zynq UltraScale+ MPSoC Architecture includes power management

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1200-V SiC MOSFET Chips Improve On-Resistance And Robustness, Infineon Technologies' CoolSiC MOSFET 1200-V M1H advanced SiC chip

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Demos Showcase GaN Devices In Range of Topologies And Power Levels, Tagore Technology's APEC 2022 demos including a 65-W quasi-resonant flyback, a



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240-W totem-pole PFC + LLC demo, a half-bridge GaN evaluation board, and an 800-W phase-shifted full-bridge reference design

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Highly Accurate Measurement System For GaN And SiC Semiconductors,
Teledyne LeCroy's DL-ISO high-voltage optically isolated 1-GHz probe and Power-Device test software

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GaN IC Enables Fast Switching, Narrow Pulses For Automotive Lidar,
Efficient Power Conversion's EPC2221 common-source dual GaN FET

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Amplifier Combines High-Definition Sound With Class-G Efficiency,
STMicroelectronics' TDA7901 automotive amplifier with buck controller for class-G power switching

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Low-Cost 1200-V SiC MOSFET Offers 50-m Ω On-Resistance, *Solitron Devices' SD11720 SiC MOSFET*

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